

SHUSAKU YAMAMOTO

(Translation)

Japanese Laid-open Publication No. 58-210776

Publication date: December 8, 1983

Application number: 57-93832

Filing date: June 1, 1982

Applicant: NEC Corporation

Specification

1. Title of the Invention

Television Reception System

2. Claims

A television reception system being characterized by comprising a means for carrying program guide information onto a sub-channel signal or a control channel signal in a television sound-multicast broadcast and transmitting it, and a means for receiving a multiplex signal thereof and separating into the sub-channel signal or the control channel signal, wherein the guide information included in the sub-channel signal or the control channel signal is stored and generated on a television receiver as a television image.

3. Detailed Description of the Invention

The present invention relates to a television reception system, particularly to a television reception system which enables the receiver, namely, the viewer, to see the guide information as an image or printed object, by multiplexing the

program guide information of the broadcast station to the sub-channel signal or the control channel signal in a sound-multiplex broadcast and transmitting it.

Although, generally, for television receivers, means for knowing the broadcast programs is by newspaper and magazines, according to the present system, direct information from the television broadcast station can be obtained at the television receiver side. The effects thereof are significant for the broadcast station and the viewer.

Conventionally, sound-multiplex broadcast is performed by a stereo sound and a double-sound broadcast such as of Japanese and a foreign language using a sub-channel signal.

Moreover, according to the data communication technique, it is capable of transmitting character information signals to remote areas to display as characters on a CRT display device at the receiving side.

The present invention carries program guide information onto a sub-channel signal or a control channel signal in a television sound-multicast broadcast and transmits it; processes the signal in the transmitted multiplex signal at the receiving side; and displays or prints out the guide information as a television image.

In the conventional television reception system, also in the sound-multiplex system, sub-channels carry voice signals of stereo broadcast and foreign language. With respect to this, the present invention carries character information signals instead of the voice signals. Moreover, the receiver has deciphering function of the character information signals, a memory function, and a function for displaying as characters

on a television receiving tube.

Next, examples of the present invention are described with reference to the drawings.

Figure 1 is a configuration example of a basic circuit of a multiplex demodulator of a conventional receiver for sound-multiplex broadcast. Multiplex signal is a signal in which the main channel signal and the sub-channel signal are synthesized. The sub-channel signal 5 is obtained by passing the multiplex signal 1 through a band-pass filter 3.

Figure 2 is an example of the present invention. At the broadcast station, the content desired to be known (for example, 1) broadcast station name, 2) start time and end time of a certain date, 4) classification of whether or not of being a change data, 5) whether or not of being a deletion order, 6) main cast names, 7) program content and the like) is multiplexed to the sub-channel signal or the control channel signal in a form of a digital signal and transmitted to the viewer as the program description.

The multiplexed program description transmitted to the multiplex signal is separated into a sub-channel signal 5 and a main channel signal 7 by a method shown in Figure 1. This sub-channel signal 5 is supplied to the sub-channel signal 5' shown in Figure 2. The sub-channel signal 5' is changed into a digital signal by the following demodulator 11. The signal changed into a digital signal is once stored in register 12, recognized as one program information data transmitted from the broadcast station, and this data is stored in the data memory.

On the other hand, the display memory 16 stores Chinese characters, Hiragana characters, alphanumeric characters and

the like which are stored as encoded codes in a data memory 13, in a pattern, to display the content of the data memory 13 as an image. The control part 15 receives a display indication order from the operation switch 14 to retrieve the content of the data memory 13 and the content of the display memory 16, and performs an indication for the content to be displayed to the memory generation part 17 to display as an image on the television receiving tube 19. Moreover, not only displaying on the receiving tube, but the content can be printed on a printer 18.

The operation switch 14 is constituted of a station selection switch, numerical keypad buttons, and the like. By these button operations, desired program information such as the following can be obtained:

1) program lists for each broadcast station of a certain time of the present day;

2) program list for one day of a certain broadcast station of the present day; and

3) program list for one day of a certain broadcast station of a certain day. Regarding the information of the time which has passed, the receiving side deletes the content of the data memory 13 by a "deletion order" included in the program information which is transmitted. Even if there is a change in time, content and the like of a program, the content of the data memory 13 is rewritten to a new content by the "data change" included in the information transmitted by the broadcast station side.

Moreover, the information of the time which has passed can be deleted with a timer at the receiving side.

Recently, video tape recorders VTR which are capable of program scheduling are becoming popular. If the future broadcast programs can be easily known by the present invention, there will be a significant effect in setting the program scheduling of the VTR.

In the present invention, as described above, general viewers will be able to display the information on the receiving tube when necessary or print on a printer, by the broadcast station transmitting the program guide and preview information in the same frequency band to the television receiver, in addition to the conventional image and sound broadcast.

4. Brief Description of the Drawings

Figure 1 shows a basic circuit configuration example of a multiplex demodulator of a conventional television receiver for sound-multiplex broadcast.

Figure 2 shows an example of the present invention.

In the drawings, the reference numerals correspond to the following.

1...multiplex signal, 2...amplifier circuit, 3...detection circuit, 4...sub-channel signal system, 5...deemphasis circuit, 6...main channel signal system, 11...demodulator, 12...register, 13...data memory, 14...operation switch, 15...control part, 16...display memory, 17...pattern generation part, 18...printer, 19...television receiving tube

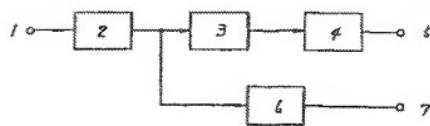


Figure 1

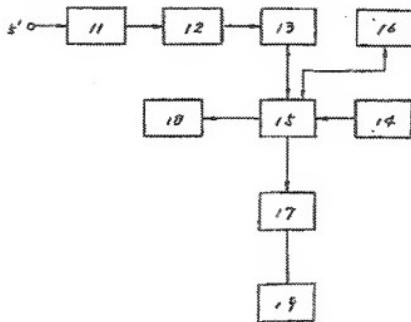


Figure 2